Requirements for Technological Samples of Beryllium, Spodumene and Tantalite - Columbite Ores

sample must be of a sufficient weight for all pertinent technological research; 4) the number of samples taken must be as small as possible. To reduce their number it is recommended to take samples of basic varieties of ores from those sections of the deposits which are scheduled for exploitation first. There are 6 Soviet references.

ASSOCIATION: (VIMS)

1. Ores--Sampling

Card 2/2

EYGELES, M.A.

21(4) PHASE I BOOK EXPLOITATION SOV/2714

International Conference on the Peaceful Uses of Atomic Energy. 2nd, Geneva, 1958

Doklady sovetskikh uchenykh; yadernoye goryucheye i reaktornyye metally. (Reports of Soviet Scientists; Nuclear Fuel and Reactor Metals) Moscow, Atomizdat, 1959. 670 p. (Series: Its: Trudy, vol. 3. 8,000 copies printed.

Ed. (Title page): A.A. Bochvar, Academician, A.P. Vinogradov, Academician, V.S. Yemel'yanov, Corresponding Member, USSR Academy of Sciences, and A.P. Zefirov, Doctor of Technical Sciences; Ed. (Inside book): V.V. Fursov and G.M. Pchelintseva; Tech. Ed.: E.I. Mazel'.

PURPOSE: This volume is intended for scientists, engineers, physicians, and biologists working in the production and peaceful application of atomic energy; for professors and students of schools of higher technical education where the subject is taught; and for people interested in atomic science and technology.

COVERAGE: This is volume 3 of a 6-volume set of reports on atomic energy, presented by Soviet scientists at the Second International Conference on the Peaceful Uses of Atomic Energy, held in Geneva from September 1 to 13, 1958. Volume 3 consists of two parts. The first part, edited by A.I. Zubov, is devoted to geology, prospecting, concentration and processing of nuclear source material. The second part, edited by O.L. Zverev, includes 27 reports on metallurgy, metallography, processing technology of nuclear fuels and reactor metals, and neutron irradiation effects on metals. The titles of the individual papers in most cases correspond word for word with those in the official English language edition on the Conference proceedings. See SOV/2081 for the titles of the other volumes of the set.

Eygeles, M.A., L.A. Zyrikova, M.L. Volova, A.M. Shishov, and V.M. Lakshenko. Flotation of Pitchblende From Synthetic Mixtures and Ores (Report No. 2062) 239

Eygeles, M.A., and I.T. Levrinsh. Floatability of Beryl (Report No. 2065) 249

Laskorin, B.N., S.S. Metal'nikov, and A.S. Terent'yev. Extraction of Uranium From Natural Water (Report No. 2063) 259

Shevchenko, V.B., S.I. Zolotukha, I.F. Kashcheyev, S.A. Tsarev, V.A. Mikhaylov, and G.A. Toropchenova. Complex Utilization of Uranium Ores (Report No. 2064) 266

Kaplan, G.Ye., and T.A. Uspenskaya. Investigations on Alkaline Methods for Monazite and Zircon Processing (Report No. 2154 274

Card 5/11

66500

5.4400

AUTHORS: Eygeles, M.A., Volova, M.L. SOV/20-129-1-49/64

TITLE: On the Effect of the Temperature of the Medium on Induction Time in Connection With the Adhesion of Mineral Particles to an Air Bubble

PERIODICAL: Doklady Akademii nauk SSSR, 1959, Vol 129, Nr 1, pp 177-180 (USSR)

ABSTRACT: The relationships so far discovered between the characteristics of the surface condition and the adhesion in connection with flotation are only qualitative (Ref 1). The device suggested by the author (Ref 1) for investigating the adhesion of mineral particles to an air bubble has recently been improved (by V.I. Luchkov, M.A. Eygeles, V.P. Kuznetsov etc.). A circulation thermostat (by V.P. Kuznetsov and E.Sh.Shafeyev) was used. The effect mentioned in the title was quantitatively investigated by the authors with constant age of the suspension and air bubble. Figures 1 and 2 show the above effect for various minerals in coordinates $\lg\tau$ and $\frac{1}{T}$ (τ = induction time in seconds). Induction time is rapidly decreased by increasing temperature. It drops to one tenth and one

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On the Effect of the Temperature of the Medium on Induction Time in Connection With the Adhesion of Mineral Particles to an Air Bubble

hundredth of a second in the case of several minerals and various particle sizes. Despite the dependence of induction time on particle size, the character of this dependence remains equal for particles of the same size - the straight lines ($\lg\tau$, $\frac{1}{T}$) are parallel. The collectors (Lauryl-Amin) considerably reduce induction time upon adhesion. The authors investigated the effect of the temperature of the medium on induction time in the presence of collectors (Ref 1). Figure 3 shows the joint effect of the collector and temperature increase. The higher the concentration of the collector in the solution (thus, the more quantities of it are on the surface of the mineral - the sorbed quantity is smaller than the monolayer) the weaker the effect of temperature increase on induction time. The experimental dependence of induction time on temperature is expressed by equation (1) : $\lg\tau = A/T + B$ (1); A and B = constants. In this case the authors proceeded from the assumptions of A.N. Frumkin and B.V. Deryagin (Refs 4,5). Temperature increase changes the

4

condition of the double layer, the viscosity of water in the boundary layers, and the chemical composition of the surface compounds. The most important result of temperature increase within the medium, however, is increased agitation of the water molecules in the boundary layers. Consequently, these layers become unstable. Thus they become thinner and adhesion increases. If it is assumed that the mechanism of the heat conduction depends on this instability process of the wetting film, induction time may be considered to be characteristic of the total rate of the instability processes of the boundary layers on the solid surface and the separating layer of the air bubble. The apparent activation energy required to make the boundary layers unstable can be computed from the data characterizing the rate of the adhesion process. For this purpose a method analogous to that by Ya.I. Frenkel' (Ref 6) was used by the authors. Equation (1) is represented as equation (2) for τ. Table 1 shows the data computed from equation (2) for minerals of different nature and for different types of grinding. The collector introduced into the

SHCHERBINA, V.V.; GINZBURG, A.I., red. vypuska; MALYSHEV, I.I., red.; POLYAKOV, P.A., red.; RODIONOV, G.G., red.; STEPANOV, I.S., red.; TROKHACHEV, P.A., red.; FAGUTOV, V.P., red.; KHRUSHCHOV, N.A., red.; CHERNOSVITOV, Yu.L., red.; SHMANENKOV, I.V., red. EYGELES, M.A., red.; ROZHKOVA, L.G., red. izd-va; IYERUSALIMSKAYA, Ye.S., tekhn. red.

[Geology of rare metal deposits] Geologiia mestorozhdenii redkikh elementov. No. 8 [Geochemical characteristics of scandium and types of its deposits.] Osobennosti geokhimii skandiia i tipy ego mestorozhdenii. Moskva, Gos.nauch.-tekhn.izd-vo lit-ry po geol. i okhr. nedr, 1960, 56p. (Geologiia mestorozhdenii redkikh elementov, no. 8). (MIRA 13:11)
(Scandium)

GINZBURG, A.I.; GORZHEVSKAYA, S.A.; YEROFEYEVA, Ye.A.; SIDORENKO, G.A.; MALYSHEV, I.I., red.; POLYAKOV, M.V., red.; RODIONOV, G.G., red.; STEPANOV, I.S., red.; TROKHACHEV, P.A., red.; FAGUTOV, V.P., red.; KHRUSHCHOV, N.A., red.; CHERNOSVITOV, Yu.L., red.; SHMANENKOV, I.V., red.; SHCHERBINA, V.V., red.; EYGELES, M.A., red.; NEMANOVA, G.F., red.izd-va; BYKOVA, V.V., tekhn.red.

[Titanates, tantalates, and niobates] Titano-tantalo-niobaty. Moskva. Gos. nauchno-tekhn.izd-vo lit-ry po geol.i okhrane nedr. Part 1. 1960. 166 p. (Geologiia mestorozhdenii redkikh elementov, no.10). (MIRA 14:6)

(Titanates) (Tantalates) (Niobates)

EYGELES, M.A. (Prof.) and VOLOVA, M.L.

"Effect of Contact Time, Temperature, and Surface Condition on the Adhesion of Bubbles to Mineral Surfaces."

report to be presented at the Intl. Mineral Processing Congress, London, England, 6-9 Apr 60.
All-Union Scienfific Research Institute of Mineral Resources, Leningrad. Ref. Eygeles.

POL'KIN, Stepan Ivanovich, prof., doktor tekhn.nauk; MYGELES, M.A., prof., doktor tekhn.nauk, retsenzent; TROITSKIY, A.V., inzh., retsenzent; AVSEYENOK, A.F., otv.red.; GLEMBOTSKIY, V.A., red.; YEZDOKOVA, M.L., red.izd-va; PROZOROVSKAYA, V.L., tekhn.red.; BERESLAVSKAYA, L.Sh., tekhn.red.

[Flotation of rare metal and tin ores] Flotatsiia rud redkikh metallov i olova. Moskva, Gos.nauchno-tekhn.izd-vo lit-ry po gornomu delu, 1960. 637 p. (MIRA 13:2)
(Flotation) (Nonferrous metals)

EYGELES, M.A., [redacted]

Reply to Professor S.I. Mitrofanov's letter "Speed and selectivity of the flotation of ilmenite." Obog. rud 5 no.1:54-55 '60. (MIRA 14:8)
(Flotation) (Ilmenite)
(Mitrofanov, S.I.)

EYGELES, M.A.; VOLOVA, M.L.

Kinetic investigation of the role of collectors in adherence during flotation. TSvet. met. 33 no.6:4-10 Je '60. (MIRA 14:4)

1. Vsesoyuznyy institut mineral'nogo syr'ra.
(Flotation—Equipment and supplies)

EYGELES, M.A., prof., doktor tekhn.nauk

Method to increase flotation indices. TSvet. met. 33 no.11:18-22 N '60. (MIRA 13:11)

1. Vsesoyuznyy institut mineral'nogo syr'ya.
(Flotation)

EYGELES, M.A.; VOLOVA, M.L.

Effect of dissolving a mineral on the properties of the solution - air interface and on the induction time in sticking. Dokl.AN SSSR 133 no.4:897-900 Ag '60. (MIRA 13:7)

1. Vsesoyuznyy institut mineral'nogo syr'ya. Predstavleno akad. P.A.Rebinderom.
(Flotation)

SHMANENKOV, I.V., red.; ZVEREV, L.V., red.; KOVALENKO, O.V., red.; SOKOLOV, I.Yu., red.; EYGELES, M.A., red.; Prinyali uchastiye: BASMANOV, V.A., red.; KAMENSKAYA, L.S., red.; KOTS, G.A., red.; LEVIUSH, I.T., red.; MOKROUSOV, V.A., red.; PODKOSOV, L.G., red.; ROZHKOVA, Ye.V.; SOLOV'YEV, D.V., red.; FEDOROV, P.N., red.; FINKEL'SHTEYN, I.D.; KHONINA, O.I., red.; GRISHINA, T.B., red. izd-va; GUROVA, O.A., tekhn. red.

[Studies on the dressing and industrial processing of minerals] Issledovaniia po obogashcheniiu i tekhnologii poleznykh iskopaemykh. Moskva, Gos. nauchno-tekhn. izd-vo lit-ry po geol. i okhrane nedr, 1961. 131 p. (MIRA 14:7)

1. Russia(1923- U.S.S.R.) Ministerstvo geologii i okhrany nedr. 2. Vsesoyuznyy nauchno-issledovatel'skiy institut mineral'nogo syr'ya (for Eygeles, Leviush)
(Ores)

SHEYNMANN, Yu.M.; APEL'TSIN, F.R.; NECHAYEVA, Ye.A.; GINZBURG, A.I., red.; MALYSHEV, I.I., red.; POLYAKOV, M.V., red.; RODIONOV, G.G., red.; STEPANOV, I.S., red.; TROKHACHEV, P.A., red.; FAGUTOV, V.P., red.; KHRUSHCHOV, N.A., red.; CHERNOSVITOV, Yu.L., red.; SHMANENKOV, I.V., red.; SHCHERBINA, V.V., red.; EYGELES, M.A., red.; ROZHKOVA, L.G., red.izd-va; BYKOVA, V.V., tekhn.red.

[Alkaline intrusions, their distribution, and the mineralization associated with them] Shchelochnye intruzii, ikh razmeshchenie i sviazannaia s nimi mineralizatsiia. Moskva, Gos.nauchno-tekhn. izd-vo lit-ry po geol.i okhrane nedr, 1961. 176 p. (Geologiia mestorozhdenii redkikh elementov, no.12/13). (MIRA 15:8)
(Rocks, Igneous) (Ore deposits)

MARGOLIN, Isay Zakharovich; EYGELES, M.A., prof., doktor tekhn. nauk, retsenzent; LIVSHITS, A.K., otv. red.; KACHALKINA, Z.I., red. izd-va; SABITOV, A., tekhn. red.; SHKLYAR, S.Ya., tekhn. red.

[Coal preparation and dressing of nonmetallic minerals in heavy suspensions] Obogashchenie uglei i nemetallicheskikh iskopaemykh v tiazhelykh suspenziiakh. Moskva, Gos. nauchno-tekhn. izd-vo lit-ry po gornomu delu, 1961. 271 p. (MIRA 14:6)
(Coal preparation) (Ore dressing)

S/137/62/000/003/025/191
A006/A101

AUTHOR: Eygeles, M. A.

TITLE: The state and next problems of investigations of rare metal ore concentration

PERIODICAL: Referativnyy zhurnal, Metallurgiya, no. 3, 1962, 5-6, abstract 3G42 (V sb. "Issled. po obogashcheniyu i tekhnol. polezn. iskopayemykh", Moscow, Gosgeoltekhizdat, 1961, 98-104)

TEXT: The author analyzes fundamentals of ore concentration of properly rare metals, the majority of which represent complex ores where the rare metals are contained in the form of independent minerals, such as beryl, phenacite, chrysoberyl, pyrochlore, loparite, tantalite-columbite spodumene, pollucite, zircon, monazite, uraninite etc. The high cost of rare metal concentrates predetermines the economical efficiency of ore concentration according to complex schemes. As a result of the investigation, fundamental, and for some deposits, industrial schemes of ore concentration were developed. Gravitation methods are the basic means of concentration. Great attention is paid to flotation concentration of ores. Some reagent prescriptions are developed for the flotation of

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The state and next problems ...

rare-element minerals when using anion and cation collectors. Some operational hypotheses for individual stages of the flotation process when applied to oxide and silicate separation, are proposed for discussion. The refining of crude gravitational concentrates of rare-metal ores is brought about by combining magnetic and electrostatical separations, and also flotation according to rather complicated schemes. When refining flotation rare-element concentrates by the flotation method, a substantial effect on the concentration results is exerted by deep changes in the mineral layer surface, both when preparing the ore for refining operations and during the refining operations proper. When electric separation is used for the refining of concentrates, the surface must be specially prepared (drying, roasting and treatment with flotation reagents).

A. Shmeleva

[Abstracter's note: Complete translation]

Card 2/2

S/137/62/000/003/033/191
A006/A101

AUTHORS: Eygeles, M. A., Leviush, I. T., Fuki, I. V.

TITLE: Concentration of beryllium ores

PERIODICAL: Referativnyy zhurnal, Metallurgiya, no. 3, 1962, 11, abstract 3G77 (V sb. "Issled. po obogashcheniyu i tekhnol. polezn. iskopayemykh", Moscow, Gosgeoltekhizdat, 1961, 115-123)

TEXT: Some fundamentals are presented on the technological classification of Be-ores according to a series of features characteristic for their concentration technology (the size of disseminations of Be-minerals, the mineralogical shape of Be, the composition of valuable minerals, the substantial composition of the ore mass). The concentration of beryllium ores was developed in two directions: the acid method and the alkaline method. Both these methods are based on the depression of dead rock minerals and the activation of beryllium flotation. An advantage of the acid method is the considerable activation of beryllium by HF and the possibility of obtaining separately mica, quartz and fluorspar products. A deficiency of this process is the necessity of double flotation of the basic ore mass in a strongly acid medium. In the alkaline

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S/137/62/000/003/033/191
A006/A101

Concentration of beryllium ores

method, Na_2S is used as a selectively acting depressor, which makes it possible to depress, in one procedure, the basic dead rock minerals. Beryllium flotation can be intensified by the following means: a) processing the pulp by the collector during its heating to 80 - 85°C and b) removing multivalent cations during the softening of water. A method of flotating beryllium ore without preheating the basic pulp mass was developed under laboratory conditions. The basic flotation is carried out at room temperature with oleic acid. Na_2S is used as a depressor. The basic flotation concentrate is processed with Na_2S, heated and refined once or twice. The results of concentration obtained from both acid and alkaline methods are similar. Concentration of micaceous ores is complicated by the introduction of additional fluorite and actinolite cycles of flotation and repeated refining with preheating of the pulp. An additional cycle of talcum flotation is introduced prior to the processing with reagents, to remove easily flotated talcum and talcum rocks. Methods of concentration ability tests are presented.

A. Shmeleva

[Abstracter's note: Complete translation]

Card 2/2

34696
S/137/62/000/002/027/14
A006/A101

18.3100

AUTHORS: Leviush, I. T., Eygeles, M. A.

TITLE: Investigations on flotating beryllium

PERIODICAL: Referativnyy zhurnal, Metallurgiya, no. 2, 1962, 6-7, abstract 2G46 ("Tr. Vses. n.-i. in-ta mineral'n. syr'ya", no. 6, 106-122) - /96/

TEXT: The authors determined the fixation of individual reagents and compounds on minerals by the radiometric and chemical methods; they measured the induction time when mineral particles adhered to an air bubble and carried out flotation of some pure minerals, their synthetic mixtures and particular ores. Fluorspar (albite) and crushed pegmatite were added as a gangue to the composition of the synthetic mixture. The beryllium content in the mixtures was 1%. The beryllium size was 0.15 - 0.1 mm, albite or pegmatite size was 0.074 - 0.02 mm. The authors revealed the dependence of Ca^{45} and Fe^{59} sorption on beryllium and fluorspar upon their concentration in the solution and pH of the medium. It is noted that in weakly-acid, neutral and alkaline media, a parallel proceeding Fe-hydroxide precipitation process is superposed on the sorption process. The authors measured the fixing of fatty-acid collectors on

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S/137/62/000/002/027/144
A006/A101

Investigations on flotating beryllium

beryllium and fluorspar under various conditions. Higher temperatures reduce the fixation of collectors on beryllium. Beryllium activation and fluorspar activation with multivalent metal salts, contained in natural water, and waste products of mills, increase the flotation extraction of minerals when using oleic acid as a collector. It is shown that the use of Na-cationized water for the flotation of synthetic mixtures of beryllium-albite and beryllium ores, makes it possible to increase considerably selectivity of beryllium flotation. Heating the pulp to 85 - 90°C prior to adding the oleic acid and the use of Na-cationized water raise substantially selectivity of beryllium flotation from synthetic mixtures and ores. There are 15 references.

A. Shmeleva

[Abstracter's note: Complete translation]

Card 2/2

S/081/62/000/004/044/087
B156/B138

AUTHORS: Khonina, O. I., Evgelea, M. A.

TITLE: The effects of sodium carbonate and silicate on the flotation of zircon by oleic acid

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 4, 1962, 359, abstract 4K42 (Tr. Vses. n.-i. in-ta mineral'n. syr'ya, no. 6, 1961, 148 - 157)

TEXT: The depression of zircon begins when 250 - 1600 g of sodium carbonate or 750 - 1000 g of sodium silicate are introduced per ton, depending on the amount of collector used. Complete depression of zircon, with the surface not activated during pulverization, is reached at 2000 g of sodium carbonate or 1000 g of sodium silicate per ton. At high concentrations, both regulators affect foam formation. Sodium carbonate reduces foam formation to zero, while sodium silicate alters the nature of the foam, reducing the strength and extent of mineral attachment to the air bubbles. [Abstracter's note: Complete translation.]

Card 1/1

S/137/62/000/002/032/144
A006/A101

AUTHORS: Eygeles, M. A., Leviush, I. T.

TITLE: Flotation of sericite

PERIODICAL. Referativnyy zhurnal, Metallurgiya, no. 2, 1962, 9, abstract 2G65 ("Tr. Vses. n.-i. in-ta mineral'n. syr'ya", 1961, no. 6, 178-188)

TEXT: Information is given on experimental results from studies of the flotability of pure sericite and its flotation extraction from tails of the Balkhash plant. The fine-laminated sericite is poorly flotated with anionic collectors. Flotation is characterized by low extraction and poor selectivity. The use of regulators (NaOH, Na_2CO_3 and others), depressors (water glass, NaF, Na_2S and others), activators (Pb, Al and Ba nitrates) also did not yield positive results. Chrysoidin is an effective collector for extracting fine-laminated sericite from the ore. Copper flotation tails of Kounrad ore yielded sericite concentrate, meeting the requirements to alumina raw material. There are 19 references.

A. Shmeleva

[Abstracter's note: Complete translation]

Card 1/1

S/035/62/000/005/061/098
A055/A101

AUTHOR: Eygenson, M. S.

TITLE: On the problem of the pre-geological and geological phases of the Moon's history

PERIODICAL: Referativnyy zhurnal, Astronomiya i Geodeziya, no. 5, 1962, 63, abstract 5A476 ("Geol. sb. L'vovsk. geol. o-vo pri L'vovsk. un-te", 1961, no. 7-8, 229-238, English summary)

TEXT: In the first stages of the history of the Moon regarded as a planet, the Moon had an extremely abundant "subcrustal" source of lava "feed". Calculations show that the interior part of the Moon is to-day, on the whole, already solid. This is in agreement with the general tectonic passivity of the Moon of to-day. It is possible, however, that local lava seats exist, even now, in the crust of the Moon, in points where there is a fortuitous concentration of radiogenic sources. There are 9 references.

From the author's summary

[Abstracter's note: Complete translation]

Card 1/1

EYGELES, M.A.; VOLOVA, M.L.

Effect of the solution of apatite on the time of induction in flotation adhesion. Dokl.AN SSSR 138 no.5:1158-1161 Je '61. (MIRA 14:6)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut mineral'nogo syr'ya. Predstavleno akademikom P.A.Rebinderom.
(Apatite) (Suspensions (Chemistry))

EYGELES, M.A.; VOLOVA, M.L.; VOLVENKOVA, V.S.; UMNOVA, Ye.G.

Radiometric investigation of the formation of calcium compound films at the solution-air interface and their effect on adhesion in flotation. Dokl. AN SSSR 147 no.1:166-169 N '62. (MIRA 15:11)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut mineral'nogo syr'ya. Predstavleno akademikom P.A. Rebinderom.
(Calcium compounds)
(Flotation)

S/081/62/000/018/022/059
B177/B186

AUTHORS: Lygeles, M. A., Leviush, I. T., Fuki, I. V.

TITLE: Concentration of beryllium ores

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 18, 1962, 332, abstract 18K8 (In collection: Issled. po obogashcheniyu i tekhnol. polezn. iskopayemykh. M., Gosgeoltekhizdat, 1961, 115 - 123)

TEXT: The concentration by flotation of various types of beryllium ores is investigated. The depressor used was Na_2S. The pulp was treated by a collector at 80-85°C and softened water was used, thereby eliminating multivalent cations. A flotation process for beryllium ores is proposed, which has been tested on an industrial scale and consists of the stages: crushing, pulverizing and removal of slurry, treatment with chemical reagents followed by heating and flotation of the beryllium with from 1 - 3 re-flushings. The flotation of beryllium without heating was also studied, and a method was developed to test beryllium ores for reversibility.
[Abstracter's note: Complete translation.]

Card 1/1

SHVEY, Igor' Vladimirovich; GINZBURG, A.I., glavnyy red.; POLYAKOV, M.V., zamestitel' glavnogo red.; APEL'TSIN, F.R., red.; GRIGOR'YEV, V.M., red.; RODIONOV, G.G., red.; STEPANOV, I.S., red.; TROKHACHEV, P.A., red.; FAGUTOV, V.P., red.; KHRUSHCHOV, N.A., red.; CHERNOSVITOV, Yu.L., red.; SHMANENKOV, I.V., red.; SHCHERBINA, V.V., red.; EYGELES, M.A., red.; ENTIN, M.L., red.izd-va; BYKOVA, V.V., tekhn.red.

[Basic geochemical problems of rare earth elements and yttrium in endogenic processes] Osnovnye voprosy geokhimii redkozemel'nykh elementov i ittriia v endogennykh protsessakh. Moskva, Gos. nauchn.-tekhn. izd-vo lit-ry, po geologii i okhrane nedr, 1962. 105 p. (Geologiia mestorozhdenii redkikh elementov, no.15). (MIRA 15:11)
(Rare earth metals) (Yttrium)

EYGELES, M. A.; VOLVENKOVA, V. S.

"non-organic electrolytes and colloids in the elementary flotation step."

paper to be presented at the Sixth International Mineral Processing Congress, Cannes, France, 26 May - 2 Jun 63

KASATKIN, V.G.; EYGELES, M.A.

Method of separating an equilibrium solution from a powder prior to absorption measurements. Min.syr'e no.5:122-127 '62.
(MIRA 16:4)
(Absorption) (Filters and filtration)

EYGELES, M.A., prof.; GREKULOVA, L.A.

Mineralization of air bubbles in the flotation machine. Obog. rud 7 no.2: 6-11 '62. (MIRA 16:4)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut mineral'nogo syr'ya. (Flotation)

STAVROV, O.D.; GINZBURG, A.I., glavnyy red.; POLYAKOV, M.V., zam. glavnogo red.; APEL'TSIN, F.R., red.; GRIGOR'YEV, V.M., red.; RODIONOV, G.G., red.; STEPANOV, I.S., red.; TROKHACHEV, P.A., red.; FAGUTOV, V.P., red.; KHRUSHCHOV, N.A., red.; CHERNOSVITOV, Yu.L., red.; SHMANENKOV, I.V., red.; SHCHERBINA, V.V., red.; EYGELES, M.A., red.; FEDOTOVA, A.I., red.izd-va; IYERUSALIMSKAYA, Ye., tekhn. red.

[Basic characteristics of lithium, rubidium, sesium in the process of the formation granite intrusives and the pegmatites connected with them.] Osnovnye cherty geokhimii litiia, rubidiia, tseziia v protsesse stanovleniia granitnykh intruzivov i sviazannykh s nimi pegmatitov. Moskva, Gosgeoltekhizdat, 1963. 140 p. (Geologiia mestorozhdenii redkikh elementov, no.21). (MIRA 17:2)

EYGELES, M.A.

Mechanism of flotative adhesion. TSvet. met. 36 no.3:5-10 Mr '63. (MIRA 16:5)
(Flotation)

EYGELES, M.A.; VOLOVA, M.L.; VOLVENKOVA, V.S.; UMNOVA, Ye.G.

Role of colloids in the flotation process. TSvet. met. 36 no.6:3-10 Je '63. (MIRA 16:7)

(Colloids) (Flotation)

EYGELES, M. A.; VOLOVA, M. L.

"On the mechanism of activation and depressant action in soap flotation."

report submitted for 7th Mineral Processing Cong, New York, 20-25 Sep 64.

EYGELES, M.A.; ANTONOVA, T.N.; KUZNETSOV, V.P.; VOLOVA, M.L.; SAKHAROVA, Ye.P.; KOSYGIN, V.V.; KISLOV, A.V.; BALASHOVA, G.G.

Simultaneous production of high-quality fluorite concentrates from multicarbonate ores low in fluorite. TSvet. met. 37 no.11: 32-35 N '64. (MIRA 18:4)

EYGELES, Moisey Arnol'dovich, prof., doktor tekhn. nauk; LIFSHITS, A.K., retsenzent; BARSKIY, L.A., otv. red.

[Principles of flotation of nonsulfide minerals] Osnovy flotatsii nesul'fidnykh mineralov. Izd.2., perer. i dop. Moskva, Izd-vo "Nedra," 1964. 406 p. (MIRA 17:5)

[illegible], M.A.; VOLOVA, M.L.

Formation of films from products of the reaction of sodium oleate with a calcium salt at the solution - air interface and their effect on flotation sticking. Dokl. AN SSSR 160 no.4:883-886 F '65. (MIRA 18:2)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut mineral'nogo syr'ya. Submitted July 27, 1964.

GORZHEVSKAYA, Susanna Aleksandrovna; SIDORENKO, Galina Aleksandrovna; GINZBURG, A.I., glavnyy red.; POLYAKOV, M.V., zamestitel' glavnogo red.; APEL'TSIN, F.R., red.; GRIGOR'YEV, V.M., red.; RODIONOV, G.G., red.; STEPANOV, I.S., red.; TROKHACHEV, P.A., red.; FAGUTOV, V.P., red.; CHERNOSVITOV, Yu.L., red.; SHMANENKOV, I.V., red.; SHCHERBINA, V.V., red.; EYGELES, M.A., red.

[Titano-tantalo-niobates. Part 2.] Titano-tantalo-niobaty. Moskva, Nedra. Pt.2. 1964. 115p. (Geologiia mestorozhdenii redkikh elementov, no.23) (MIRA 18:1)

EYGELES, M.A.; [illegible], M.L.

[illegible] of the flow of air bubbles on the formation of films of calcium compounds on the surface of solutions. Dokl. AN SSSR 163 no.5:1205-1208 Ag '65. (MIRA 18:8)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut mineral'nogo syr'ya. Submitted January 25, 1965.

EYGELES, M. Æ.; VOLVENKOVA, V. S. (B.Sc.Tech.)

"Non-organic electrolytes and colloids in the elementary flotation step."

Min of Geology & Protection of Mineral Resources, Moscow.

report submitted for 6th Intl Mineral Processing Cong, Cannes, 26 May-2 Jun 63.

EYNER, L. N.

"The Quality of Commercial Milk in Leningrad," Gig. i San., No.9, 1949.

Lab. of Sanitation and Hygiene, Petrograd Div., Leningrad Dept. of Health

S/124/61/000/011/045/046
D237/D305

24.5500

AUTHORS: Zagryazkin, N.N., and Eygeles, P.M.

TITLE: Non-stationary method of measuring the high temperature of gases

PERIODICAL: Referativnyy zhurnal, Mekhanika, no. 11, 1961, 142, abstract 11B940 (Tr. Labor. dvigateley, AN SSSR, 1958, no. 4, 167 - 174)

TEXT: Heating of the thermocouple in a stream of hot gas depends greatly on the loss of heat by radiation and thermal conductivity of connecting parts. During the initial period however, these losses are small and temperature increase follows the ideal curve for the heating without heat losses. This is utilized for temperature measurement. A thermocouple is inserted into the stream for a short time. Dependence of the temperature of the thermocouple on time which is registered by the instrument, is taken as the beginning of the ideal curve. From this the remainder of the curve is drawn and turbulence temperature of the stream is determined. The equa-

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tion of an ideal heating curve is used here which was obtained by simplifying the assumptions on the constancy of parameters determining the heating. In this manner high temperatures can be measured, and as a thermocouple remains in the stream for a short time only, any materials can be used for their construction. Description of the apparatus and some results are given. [Abstractor's note: Complete translation].

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EYGELES, R. M.

AID P - 276

Subject : USSR/Engineering

Card : 1/2

Author : Ioannesyan, R. A.

Title : Effect of inner pressure on longitudinal stability of the bottom portion of the drilling column at turbine drilling

Periodical : Neft. Khoz., v. 32, #4, 5-8, Ap 1954

Abstract : The author replies to B. B. Dadashev's critical comments on the author's book Theory and Technique of Turbine Drilling and also on M. T. Gusman's book Turbine Drilling of Oil Wells. The comments concern erroneous conclusions on the positive effect of pressure drop in the turbo-drill on the longitudinal stability of the bottom part of the drilling column. On the other hand, the author indicates a substantial error made by Dadashev in his theoretical formulation of acting forces as well as in his conclusions. The correctness of the author's analysis was confirmed by experiments conducted by his associates G. A. Lyubimov, V. L. Il'skiy and R. M. Eygeles.

AID P - 276

Neft. Khoz., v. 32, #4, 5-8, Ap 1954 (additional card)

Card : 2/2

Institution : All-Union Scientific Research Institute on Oil Well Drilling (VNIIburneft).

Submitted : No date

EYGELES, R.M.

AID P - 1767

Subject : USSR/Mining

Card 1/1 Pub. 78 - 5/26

Authors : Konstantinov , L. P. and Eygeles, R. M.

Title : Study of the work of three-cutter bits by high-speed filming

Periodical : Neft. khoz., v.33, no.3, 23-27, Mr 1955

Abstract : Tests were made with different types of cutter bits and different kinds of rocks to be drilled by pure drilling and impact-drilling operations. The behavior of the bids and of the drilled media were recorded by high-speed filming. The results are given. Photos, chart

Institution: (All-Union Scientific Research Institute for Oil Drilling) VNIIburneft'

Submitted : No date

EYGELES, R.M.

Some regularities in the dynamics of bit teeth penetration into the rock. Neft.khoz.34 no.8:14-20 Ag '56. (MIRA 9:10)
(Boring) (Oil well drilling)

EYGELES, R. M. ~~Dos~~ Cand Tech Sci -- (diss) "Study of the laws of the process of drilling with cutting bits." Mos, 1957. 20 pp 20 cm. (Min of Higher Education USSR. Moscow Order of Labor Red Banner Petroleum Inst im Academician I.M. Gubkin), 110 copies (KL, 21-57, 103)

EYGELES, R. M.

"The Dependence of Bore Thrust on the Drill Pressure, on the Drill Speed, on Rock Properties Etc."

report presented at the Conferencein the Mining Inst. AS USSR on Problems of Rock Disintegration, 20-22 May 1958.
(Vest. AN SSSR, No. 8, 1958, pp. 130-132)

Eygeles, R.M.

26(1,4) PHASE I BOOK EXPLOITATION SOV/2543

Akademiya nauk SSSR. Laboratoriya dvigateley

Teoriya, konstruktsiya, raschet i ispytaniye dvigateley vnutrennego sgoraniya (Theory, Design, Calculation, and Testing of Internal Combustion Motors) Moscow, Izd-vo AN SSSR, 1958. 174 p. (Series: Its: Trudy, vyp. 4) Errata slip inserted. 3,000 copies printed.

Ed. of Publishing House: V.N. Klennikov; Tech. Ed.: T.A. Prusakova; Editorial Board: M.D. Apashev, Doctor of Technical Sciences, N.N. Zagryazkin, Candidate of Technical Sciences, Yu. B. Sviridov, Candidate of Technical Sciences, S.Z. Izrantsev, Engineer, and K.G. Yevgrafov, Engineer.

PURPOSE: This book is intended for workers of scientific research institutes, students of schools of higher education (vuzes), design bureaus, and to promote exchange of experimental information on the thermodynamics of internal combustion engines.

COVERAGE: This collection consists of 14 articles based mainly on research work done by the author in 1955-1956. Part I is devoted to working processes in gas turbine power plants and to theoretical and experimental work connected with investigation of the flow of gases. Part II contains articles on the investigation of processes in piston engines. Part III deals with the measurement of high temperatures of gases. The collection is number 4 of the Transactions of the Engine Laboratory of the Academy of Sciences, USSR. No personalities are mentioned. There are no references.

EYGELES, R.M., kand.tekhn.nauk

Experimental studies of materials designated for imitating plastic rocks. Trudy VNIIBT no.3:30-35 '61. (MIRA 15:1)
(Petrology)

ZHUKOVSKIY, S.R.; FAL'KON, M.; EYGELES, R.M.

Use of high speed motion-picture photography for the study of rock breaking. Zhur. nauch. i prikl. fot.i kin. 6 no.1:50-52 Ja-F '61. (MIRA 14:3)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut burovoy tekhniki i Moskovskiy gosudarstvennyy universitet, kafedra uchebnoy i nauchnoy fotografii i kinematografii.
(Motion-picture photography—Scientific applications)
(Boring)

GRISHIN, A.S., inzh.; KONSTANTINOV, L.P.; KOROL'KO, Ye.I.; EDEL'SHTEYN, Ye.I.; EYGELES, R.M.

Destruction of brittle bodies. Trudy VNIIBT no.1:131-133 '58. (MIRA 11:12)

(Rocks)

KONSTANTINOV, L.P., inzh.; FAL'KON, S.M., inzh.; EYGELES, R.M., kand.tekhn.nauk

Study of bit torsional moments. Trudy VNIIBT no.3:14-17 '61. (MIRA 15:1)

(Turbodrills)

EIGELES, R.M., kand.tekhn.nauk

Trend of studies on improving the process of breaking rocks in drilling. Trudy VNIIBT no.6:3-16 '62. (MIRA 16:6)
(Boring)

EDEL'SHTEYN, Ye.I.; EYGELES, R.M.

Fracture of rocks under pressure. Issl. po uprug. i plast. no.2:132-152 '63. (MIRA 16:8)
(Deformations (Mechanics)) (Boring)

AUTHOR: Solomonov, M.S. SOV/180-59-1-28/29

TITLE: Conference on the Physics of the Disruption of Rock and Tool Wear (Soveshchaniye po fizike razrusheniya gornykh porod i iznosu instrumentov)

PERIODICAL: Izvestiya Akademii nauk SSSR, Otdeleniye tekhnicheskikh nauk, Metallurgiya i toplivo, 1959, Nr 1, pp 123-124 (USSR)

ABSTRACT: On 18-20 November 1958 a conference was held at the Institut gornogo dela AN SSSR (Mining Institute AS USSR). One group on the physics of rock breakdown, heard the following reports: A.N. Zelenin, (IGD AN SSSR), on "Some Investigations in the Field of Mohr's Ring Construction"; A.I. Beron, VUGI, on "Physical Nature of Effects in the Cutting of Brittle Rocks"; R.Ya. Kyzeles, VNIIBT, on "Mechanism of Rock Breakdown in Static and Dynamic Insertion of Punches"; V.P. Samoylov, NIIOSP, and Shih Chung-han (MIIT) on "Experimental Investigation with the Aid of Radioactive Isotopes of the Process of the Introduction of Symmetrical Wedges (Stamps) into Rocks"; V.M. Matrosov, Tomskiy politekhnicheskiy institut (Tomsk Polytechnical Institute), on "The Breakdown of Rock in Vibration-Rotation Drilling by the Core Method".

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The second group, dealing with tool durability, heard the following reports: A.V. Kuznetsov (IGD AN USSR) on "Abrasive Properties of Rocks and Their Influence on Drill-Edge Blunting (in Perforation Drilling)"; M.I. Skorodinov, NIIOSP, on "Investigation of Rock-Cutting Tool Wear with the Aid of Radioactive Isotopes"; V.V. Sevast'yanov, VUGI, on "Investigation of Tool Durability in the Course of Impact Chipping of Rocks"; I.A. Ter-Azar'yev, AISM, on "Main Stages in Cutting-Tool Wear in Stone Carving"; K.S. Vartanyan, AISM, on "Local Tool-Wear in Stone Cutting and Friction Work"; G.C. Karyuk, Novocherkasskiy politekhnicheskiy institut (Novocherkassk Polytechnical Institute) on "Investigation of ShBM-Combine Cutting-Tool Wear"; V.K. Kiriyenko, Opytno-issledovatel'-skiy tsekh Noril'skogo kombinata (Experimental-research department of the Noril'skiy combine) on "Increasing the Durability of the Drilling Tool and the Drillability of the Gabbrodiabases of the Noril'sk Deposits"; R.M. Lyubimov on the "Work of Giprouglemash".
Afterwards communications were presented by representatives of the Dnepropetrovskiy gornyy institut (Dnepropetrovsk Mining Institute), Novocherkasskiy politekhnicheskiy

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institut (Novocherkassk Polytechnical Institute), Khar'kovskiy gornyy institut (Khar'kov Mining Institute), Kazakhskiy gorno-metallurgicheskiy institut (Kazakh Mining and Metallurgical Institute) and others. The conference noted that little work had been done on some of the subjects discussed. It recommended that work on the physics of rock disruption should be carried out mainly at the IGD AN USSR, the Institut geologii i dobychi poleznykh iskopayemykh AN SSSR (Institute of Geology and Extraction of Minerals, AS USSR) VUGI and VNIBT; and work on tool wear and breakage preferentially at NPI, AISM, Gidrouglemash, VUGI, VNIIBT and the Institut tverdykh splavov (Hard-Alloys Institute).

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APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00041231(

KADOCHNIKOV, N.P.; EYGELIS, Yu.K.

Experimental test of the effect of powdered pesticides (DDT, benzene hexachloride, sodium fluosilicate) on small insect- and grain-eating birds. Trudy VIZR no.6:185-199 '54. (MIRA 11:7)
(Pesticides) (Birds, Injurious and beneficial)

EYGELIS, Yu.K.

KADOCHNIKOV, N.P.; EYGELIS, Yu.K.

Feeding habits of European jay nestlings (Garrulus glandarius L.) in artificial pine and oak plantations of the Saval'skoye Ranger District in Voronezh Province. Zool.zhur.33 no.6: 1349-1357 N-D '54. (MIRA 8:2)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut zashchity rasteniy VASKhNIL i Leningradskiy gosudarstvennyy universitet.
(Voronezh Province—Jays)

EYGELIS, Yu.K.

Materials on the feeding habits and economic importance of the raven in the "Les na Vorskle" forest-steppe oak wood [with summary in English]. Vest. LGU 12 no.9:116-119 '57. (MLRA 10:8)
(Belgorod Province--Ravens) (Birds--Food)

BYGELIS, Yu. K., Cand Bio Sci— (diss) "Biology and the economic significance of corvine birds in the steppe and forest-steppe zones of the European part of the USSR." Len, 1958. 20 pp (Len Order of Lenin State U im A.A.Zhdanov), 150 copies (KL,43-58, 115)

MYGALIS, Yu.K.

Biology of reproduction of the jackdaw in the "Les na Vorskle" forest-steppe oak forests [with summary in English]. Vest. LGU 13 no.3:108-115 '58. (MIRA 11:5)
(Belgorod District--Crows)

EYGELIS, Yu.K.

Food and economic significance of the jackdaw (Coleus monedula) in the "Les na Vorskle" forest-steppe oak woods [with summary in English]. Vest. LGU 13 no.15:93-101 '58. (MIRA 11:9)
(Belgorod District--Crows) (Birds--Food)

EYGELIS, Yu.K.

Some characteristics of the distribution of nests of the jay Garrulus glandarius L. Zool. zhur. 40 no.3:465-466 Mr '61. (MIRA 14:3)

1. Azerbaijan Anti-plague Station, Baku.
(Voronezh Province--Jays)
(Birds--Eggs and nests)

EYGELIS, Yu.K.

Feeding and economic importance of the rook (Corvus frugilegus L.) in Belgorod Province, R.S.F.S.R. Zool. zhur. 40 no.6:888-899 Je '61. (MIRA 14:6)

1. Azerbaijan Anti-Plague Station, Baku.
(Belgorod Province--Rocks (Birds)
(Birds--Food)
(Insects, Injurious and beneficial--Biological control)

GUSEV, V.M. [deceased]; GUSEVA, A.A.; PETROSYAN, E.A.; EYGELIS, Yu.K.

Role of birds in the transmission of ticks and fleas based on materials from the Azerbaijan S.S.R. Zool. zhur. 41 no.6: 905-912 Je '62. (MIRA 15:7)

1. Research Anti-Plague Institute of the Caucasus and Trans-Caucasia (Stavropol Kavkazsky) and Azerbaijan Anti-Plague Station, Baku.
(Azerbaijan--Ticks) (Azerbaijan--Fleas)
(Birds as carriers of disease)

EYGELIS, Yu.K.

Feeding habits and economic significance of the magpie (Pica pica L.) in broad-leaved and pine stands of the steppe and forest steppe in the European part of the U.S.S.R. Zool. zhur. 43 no.10:1517-1529 '64. (MIRA 17:12)

1. Azerbaydzhanskaya protivochumnaya stantsiya (Baku).

EYGELIS, Yu.K.

Feeding habits of jay nestlings (Garrulus glandarius L.). Zool. zhur. 44 no.1:95-100 '65. (MIRA 18:4)

1. Azerbaydzhanskaya protivochumnaya stantsiya, Baku.

RYZHIK, V.L.; BRAVO, A.L.; EYGENBROT, I.M.

Automatic control system for parallel operating welding units depending on the loads in buses. Avtom.i prib. no.1:12-18 Ja-Mr '62. (MIRA 15:3)

1. Trest "Sevzapmontazhavtomatika".
(Electric welding) (Automatic control)

L 12493-63 EWP(q)/EWT(m)/BDS AFFTC JD S/118/63/000/004/001/003

AUTHOR: Kogan, I. A.; Rozentsveyg, Y. Yu.; Eygenbrot, I. M. (Engineers) 54

TITLE: Automatic control of an arc steel-melting furnace

PERIODICAL: Mekhanizatsiya i avtomatizatsiya proizvodstva, no. 4, 1963, 8-9

TEXT: In the Sevzapmontazhavtomatika trust, a system has been developed for automatically regulating the movement of the electrodes in an arc steel-melting furnace by use of asynchronous motors. The control device consists of a unit for control signal input, a first (control) stage of magnetic amplifiers (see enclosure 1); a second amplifier stage (saturation coils) (see enclosure 2); a slave element consisting of an asynchronous motor equipped with a phase rotor; a unit for input of negative feedback, and a unit for introducing ampere-turns of displacement. The control device assures a constant ratio between the voltage and arc current. Operating specifications are: acceleration time 0.16 seconds; motor reversing time, 0.18 second, and motor braking time, 0.19 second. Owing to an improved operating regime, the tachogenerators function much more efficiently with regard to switching, heating and wearing of parts.

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BYGENEROT, V.M.

Some problems of the automatization of the hydrolysis process.
Gidroliz. i lesokhim. prom. 9 no.7:5-9 '56. (MIRA 12:3)

1.Orgenergobum.
(Hydrolysis) (Automatic control)

BANKOV, Ye.Ya.; LUK'YANOV, N.G.; EYGENBROT, V.M.

Automatic control of efficient utilization of equipment.
Priborostroenie no.11:27-29 N '58. (MIRA 11:12)
(Electric controllers) (Production control)

10(0) SOV/119-59-2-15/17

AUTHORS: Luk'yanov, N. G., Eygenbrot, V. M., Engineers

TITLE: Automatic Viscometer With Discrete Action (Avtomaticheskiy viskozimetr diskretnogo deystviya)

PERIODICAL: Priborostroyeniye, 1959, Nr 2, pp 30 - 32 (USSR)

ABSTRACT: This device that has been developed in the years 1956-1957 employs the principle of a falling ball for automatic viscosity measurements. The automatic measurement is achieved by putting back the measuring ball, after it has reached the lowest point, into the original position, by means of a geared pump built into the gage tube. As soon as this position is reached the pump stops automatically and the ball begins to sink in the medium now no longer agitated. The viscosity measurement is based upon measuring and recording the falling time of the ball between two test points in the gage tube consisting of a non magnetic material. The measuring head of the viscometer comprises two inductance coils wound over the gage tube. The position of the coils gives the points between which the falling time is measured. Each coil has a primary and a secondary winding which are

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connected through a differential transformer circuit. At the moment the ball passes one of the coils a signal which marks the beginning of the measuring time in the indicator is released in the entire electric measuring system.

When the ball passes the second mark (coil) the same reaction occurs. To prevent a local temperature rise of the gage tube and to reduce the influence which the magnetic field generated by the coils exercises on the ball, the coils are supplied by 12 V, in special cases by 2 v only. The kind of information given by the measuring head permits the use of different indicating instruments. For simple cases the use of the electric stop watch type MES-54 is recommended. The electric bridge type MS-1 may but also be used for indication. This method is dealt with in detail. Long lasting investigations showed the following results: the apparatus developed works for 500 hours without any error. A measuring cycle for viscosities of from 1800 to 10000 centipoise lasts 3 minutes. Stabilization of the ball dip line is obtained by inclining the gage tube by 3-4° to the vertical. The accuracy of reading is ±3%.

Automatic Viscometer With Discrete Action SOV/119-59-2-15/17

Ye.Ya. Klochkov, E. Ya. Livshits, V. M. Kuchenkov, and V. G. Dandre took part in developing this apparatus. There are 3 figures and 5 Soviet references.

ASSOCIATION: NIO PKB-12

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EYGENBROT, V.M.

PHASE I BOOK EXPLOITATION SOV/4411

Konferentsiya po voprosam teorii i primeneniya diskretnykh avtomaticheskikh sistem, Moscow, 1958

Teoriya i primeneniye diskretnykh avtomaticheskikh sistem; trudy konferentsii (Theory and Application of Discrete Automatic Systems; Transactions of the Conference) Moscow, AN SSSR, 1960. 572 p. 5,000 copies printed.

Sponsoring Agency: Akademiya nauk SSSR. Natsional'nyy komitet SSSR po avtomaticheskomu upravleniyu. Institut avtomatiki i telemekhaniki.

Editorial Board: M.A. Gavrilov, Doctor of Technical Sciences, Yu.V. Dolgolenko, Doctor of Technical Sciences, V.A. Kotel'nikov, Candidate of Technical Sciences, A.Ya. Lerner, Doctor of Technical Sciences, I.S. Morosanov (Scientific Secretary), G.S. Pospelov, Doctor of Technical Sciences, A.A. Fel'dbaum, Doctor of Technical Sciences, A.V. Khramoy, Candidate of Technical Sciences, and Ya.Z. Tsypkin, Doctor of Technical Sciences; Resp. Ed.: Ya.Z. Tsypkin, Doctor of Technical Sciences; Ed. of Publishing [illegible]se: M.L. Podgoyetskiy; Tech. Ed.: S.G. Markovich.

PURPOSE: These transactions are intended for the members of the conference and other specialists in automatic control.

COVERAGE: The Conference on the Problems of Theory and Application of Discrete Automatic Systems took place in Moscow from September 22 to 26, 1958. It was the first conference devoted to discussions of the present status of the theory and techniques of discrete automatic systems and to planning for future development. The papers discussed at the conference have been divided into four groups. In the first group optimization switching circuits are discussed as well as methods of relay control systems, in particular plant lag control systems in which are realized optimal processes as to quick response. The second group of papers is devoted to the analysis and synthesis of pulse systems with variable parameters, of pulse systems with several pulse components, to the study of self-oscillation phenomena in nonlinear pulse systems, and to the methods of calculating linear pulse systems. Problems of simulating pulse systems and descriptions of some pulse regulators have also been included. The third group of papers deals with digital systems. Problems of using elements of digital technique and digital computers for the automation of various fields of engineering, i.e., power engineering, mining, radio communication, metallurgy, etc., are discussed. Problems of analog-digital conversion and vice versa as well as problems of developing specialized functional converters have been included in this group. The fourth group of papers includes theoretical elements and certain practical applications of the simplest types of self-adjusting systems, optimalizing control systems, which are developed as relay, pulse and digital devices. Here are also found papers describing various methods of investigating steady state conditions in optimalizing systems, results of studying the effects of random factors on the process of automatic scanning, and examples of existing optimalizing control systems. Some of the more interesting communications and observations made during the discussion of the various conference papers have also been included in the Transactions. Personalities and references accompany most of the papers.

[illegible], I.M. (Moscow). Discrete Three-Position Regulation of Twenty Parameters By One Regulator 236

The author presents the results of developing a multichannel system for the regulation of the temperature and dampness of ten drying rooms of the Moscow Wood-Processing Plant. There are 3 references, all Soviet.

Glevnikov, V.A. (Leningrad). Methods of Increasing the Quick Response of a Rotating Amplifier and Calculation of Transients in Complex Pulse Circuits 239

Two proposed methods of increasing the quick response of a rotating amplifier, that is either by increasing the amplitude or increasing the pulse duration, are rejected by the author because both lead to an undesirable increase of pulse power and output voltage. The author developed a special scheme for increasing quick response which he describes in detail. The forcing of the transient is obtained at the expense of a discharge of capacitance on the control winding in an interval between pulses. There is 1 Soviet reference.

S/081/61/000/021/031/094
B101/B147

AUTHORS: Kuznetsov, Ye. F., Eygenbrot, V. M.

TITLE: Contactless semiconductor integrating water meter

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 21, 1961, 249, abstract 21I73 (Nauchno-tekhn. inform. Tsentr. byuro tekhn. inform. bum. i derevoobrabat. prom-sti GNTK SSSR, sb. 5, 1960, 53-56)

TEXT: The apparatus of the type ЦВМ-3 (SVM-3) with magnetoelectric indication developed and produced by Orgenergobum is intended for measuring the total amount of liquid, gas, or vapor streaming through a pipeline within any period of time, an integrating flow meter being attached to the pipeline. The apparatus counts the number of passages of the counter rod of the integrator of the flow meter serving as a pickup. The indicator of the apparatus is made on the basis of a precision chronometer (secondary electric clock type 31-3B4 (31-EVCh) representing a pulsed electromagnetic motor whose armature turns through 30° on every change of voltage supplied to the stator winding. The armature shaft is connected with the pointer via speed reducer. The contactless trans-

Contactless semiconductor...

mission of the integrator rod passages is performed by a transducer attachment basing on the modulation of a luminous flux. The latter is emitted from two lamps through an opening in the obturator which is fixed to the integrator rod. On passage of the light through the obturator, the photoconductive cells type ФСК-1 (FSK-1) are illuminated feeding pulses to the motor winding. The apparatus is fed from a 127-v mains, 50 cps. The distance between pickup and indicator may be up to 50 m. Maximum error ± 2.5%. [Abstracter's note: Complete translation.]

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S/118/60/000/011/008/014
A161/A133

16.9500 (1031, 1121, 1132)

AUTHORS: Luk'yanov, N.G., and Eygenbrot, V.M., Engineers

TITLE: Multichannel control systems with pneumatic automation means

PERIODICAL: Mekhanizatsiya i avtomatizatsiya proizvodstva, no. 11, 1960, 30-33

TEXT: Institut avtomatiki i telemekhaniki AN SSSR (The Institute of Automation and Telemechanics of the Academy of Sciences of the USSR) is developing pneumatic control elements with relay characteristics. The authors suggest several possible designs of such control systems called "ПМСАР" (PMSAR). The system in fig.1 has a pulse generator (ГИ), a commutator (K) being a ring bus calculating circuit consisting of pneumatic relay elements, and a regulator (P). The commutator output circuits are controlling the pneumatic relays placed in the line of every controlled object. Examples of the elements such as the ring bus circuit, the pneumatic relays and so on, are not new, and the fabrication of a pulse generator presents no difficulties. No verified data are yet available for determining the

proper number of channels in pneumatic systems, but the method suggested by Doctor of Technical Sciences Ya.Z.Tsypkin might be used for determining the setting parameters in objects with positive selfaligning, or the Kotel'nikov's theorem that makes possible the finding of the least time interval between the answeringsof a point. The pneumo-electric system includes electro-pneumatic converters and either membrane type work mechanisms (Fig.4), or piston-type with self-braking. The latter variation is simpler. Conversion in it is possible with two pneumatic solenoid valves (Fig.5), which reduces the nonproductive losses of command air inherent in the membrane system (Fig.4). Instead of a feedback, correction may be achieved by variation of the control pulse duration in accordance with the mismatch signal X being produced by the measuring circuit. Such a system is used in the "МИР" ("MIR") device developed by ПКБ (PKB) and МЗТА (MZTA). A functional correlation of the control pulse duration and the x value in pneumo-electrical "MSAR" could be achieved by a circuit as in (Fig.6). The duration of regulating effect in this system is determined by the time interval between the operation of the relay 2P and 3P (i.e. delay of the relay 3P , T_3). The correcting effect, i.e. increased T_3 may be calculated from a formula

determining the charging time of the capacitance to voltage equal to the thyratron ignition potential in the control electrode:

$$V_c = V_a \left(1 - \ell^{-\frac{t}{\tau}}\right)$$

where V_c is voltage in the capacitor, and V_a - the feed voltage.

Assuming $V_c = V_3$,

$$V_3 = V_a \left(1 - \ell^{-\frac{T_3}{\tau}}\right) \text{ and } T_3 = \tau \ell_n \frac{V_a}{V_a - V_3},$$

but $\tau = c(R + R_i) = c\left[R_i + f(x)\right]$, and,

finally, $T_3 = c\left[R_i + f(x)\right] \ell_n \frac{V_a}{V_a - V_3}$.

Evidently, the regulating effect time consists of two components - the one

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is determined by the variable resistance value R_1, and the other by the value f(x) (Fig.7). It must be kept in mind when selecting R_1 and f(x) that T_3 must not exceed the time during which the commutator stays at each point. There are 7 figures and 6 Soviet-bloc references.

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Fig. 1 - "PMSAR" with membrane servo-elements.
P -regulator;
K -commutator;
ГИ -pulse generator;
ИМ -servo mechanisms;
Д -pickups;
З -setters;
РЗ -relay switching the pickups; РЗ -relay switching the setters; РИМ -relay switching the servo-mechanisms;
$\Delta p'$ and $\Delta p''$ - throttles.

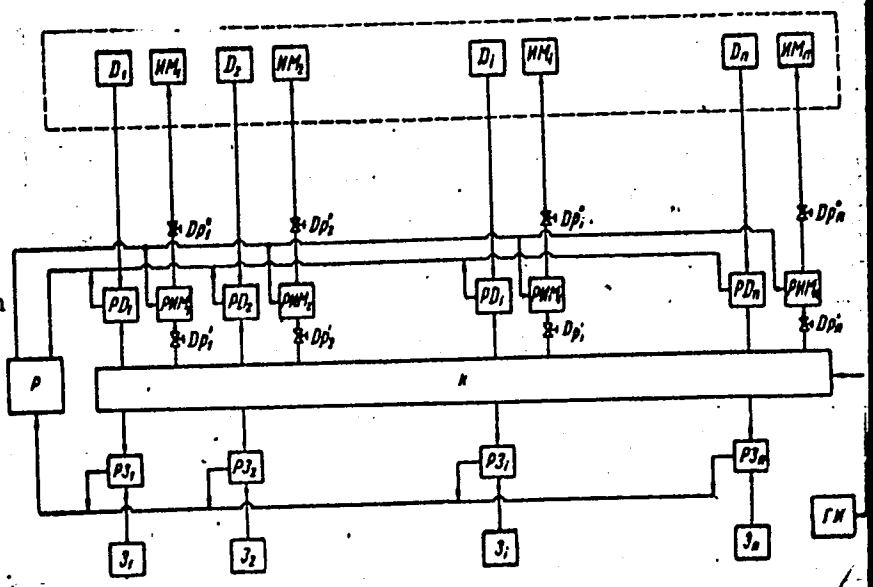

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Fig. 4 - ЭШП (EShP) switching system for pneumo-electric "MSAP" with membrane type servo mechanisms.
1-air filter;
2-air pressure regulator;
3-reversive micromotor;
4-valve of РДВ -2 (RDV-2) reductor.

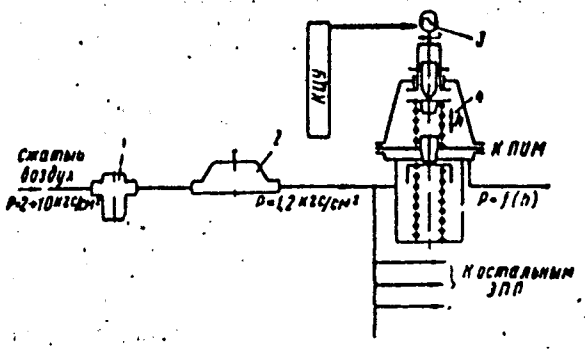

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Fig. 5 -ЭПП (EPP) switching system for pneumo-electric "MSAP" with piston type servo mechanism.

1-pneumo-electric valve (e.g. ЭПК¾"- (EPK¾") type);
2-piston-type servo-mechanism;
3-controlable throttle.

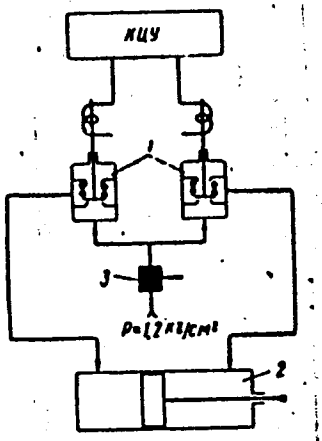

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Fig. 6 - Variation of the control pulse duration by the mismatch signal value.
ИБ -measuring unit;
Т -thyratron;
Л1- charging tube;
Л2- cathode follower;
В - valve;
Тр - cathode follower transformer;
К1, К 2, К 3 - contacts, КЦД (KTsD), КЦУ (KTsU) and КРВ (KRV) type;
Д -pickup; З -setter;
Р -regulator; 2Р , 3Р -relays;
R_i - circuit R resistance;
С - capacitance.

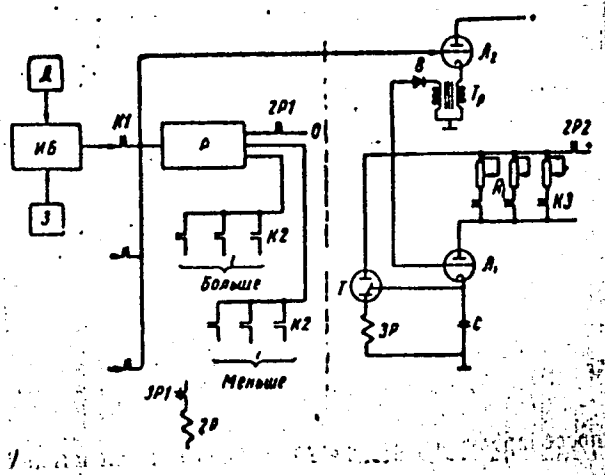

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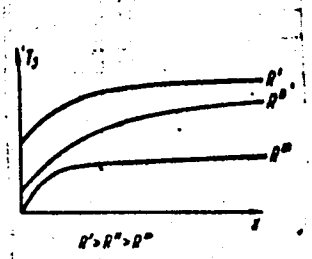
Fig. 7 - relation between the regulating effect time and the deviation of the controlled parameter.



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S/123/61/000/009/019/027
A004/A104

AUTHOR: Eygenbrot, V. M.

TITLE: The discrete three-position control of 20 parameters by one controller

PERIODICAL: Referativnyy zhurnal, Mashinostroyeniye, no. 9, 1961, 1, abstract 9E9 (V sb. "Teoriya i primeneniye diskretn. avtomat. sistem." Moscow, AN SSSR, 1960, 236-238)

TEXT: The author gives an account of the result of developing a multi-channel temperature and humidity control system of 10 drying chambers of the Moskovskiy derevoobrabatyvayushchiy zavod (Moscow Wood Working Plant). The measurements are effected with the aid of thermocouples (for the measurement of the moisture content the method of psychometric difference is employed). The circuit contains: ЭРТ-К (ERT-K) controllers, 2КП (2KP) relays for the switching of the measuring channel circuits; step-by-step selectors used as switches; a breaker being the combination of two time relays on thyratrons with cold cathodes. The circuit was tested in laboratory and service conditions and showed satisfactory results. There are 3 references. G. Flidlider

[Abstractor's note: Complete translation]

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LEMBERG, Mikhail Dmitriyevich; [redacted]BROT, V.M., retsenzent; PLEVAKO, N.A., red.; BORUNOV, N.I., tekhn. red.

[Pneumatic control] Pnevmoavtomatika. Moskva, Gos. energ. izd-vo, 1961. 110 p. (Biblioteka po avtomatike no.46). (MIRA 15:3)

(Pneumatic control)

23561

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D203/D306

9.4160
16.8000 (1031, 1121, 1137)

AUTHORS: Kotovich, D.B., Luk'yanov, N.G. and Eygenbrot, V.M., Engineers

TITLE: Control of technological parameters using electronic ray indicators

PERIODICAL: Mekhanizatsiya i avtomatizatsiya proizvodstva, no. 5, 1961, 11-14

TEXT: Various methods of electronic ray indicators were studied by the Proyektnokonstruktorskoye byuro ministerstva stroitel'stva (Planning and Design Office of the Ministry of Construction), RSFSR, for the control of technological parameters. A basic block diagram of a multi-channel apparatus with the cathode ray tube is shown. The synchronizing of the commutator and the horizontal deflection causes the switching on of each of the controlled parameters only at a determined position of the ray along the x-x axis. Most technological processes with small changes of the parameters under production conditions should permit the

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use of zero-less scales. This allows an increase in the number of parameters which could be read on one CRT. The errors in reading could be reduced without an increase in the requirements with respect to the accuracy of the instrument. It was found that the number of parameters which could be read on one screen of 178 mm. diameter could be increased to 64 without inconvenience in the reading, provided that the variations of the parameters do not exceed 30% of the nominal value. The requirements with respect to the commutator are as follows: The time of the whole cycle should be less than 0.02 sec; the transmitted cycle should be stable; the commutator circuit should assure (together with the elements connected in series) a high input resistance approaching that at the no-load periods of the transmitter. Mechanical and hydro-mechanical commutators have many disadvantages e.g. the brushes, the presence of mercury and the fact that they cannot be applied in the case of a large number of channels. The working of mechanical commutators could be improved by the use of a long luminescence screen CRT which allows a 2-3 times lower velocity of the cycle. A contactless experimental photo-electric commutator is shown diagrammatically.

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Each photocell represents a variable resistance of the divider which has as second part the load resistance R_A. Because of the large value of the ratio $\frac{R_\phi^T}{R_\phi^0}$ at a convenient selection of R_A (such that $R_\phi^0 \ll R_A \ll R_\phi^T$) it is possible to assume that when all photocells darken, the potential across the R_A shall be near to zero, but at the lighting of one of them, the potential across the R_A will be equal to (eq. 1)

$$V_A = E_i \frac{R_A}{R_A + R_\phi^0}, \quad (1)$$

where R_ϕ^0 = resistance of the illuminated photocell. R_ϕ^T = resistance of the darkened photocell. E_i = signal voltage of the contacting unit.

This photo-electric commutator appears to be promising. Its disadvantage is the limited work time of the illuminator. This could be corrected by lowering the input voltage applied to the illuminator. Experiments show that lowering the glow voltage by 15% does not affect practically

the magnitude of the V_A. An inductive commutator which is described is shown diagrammatically in Fig. 4.

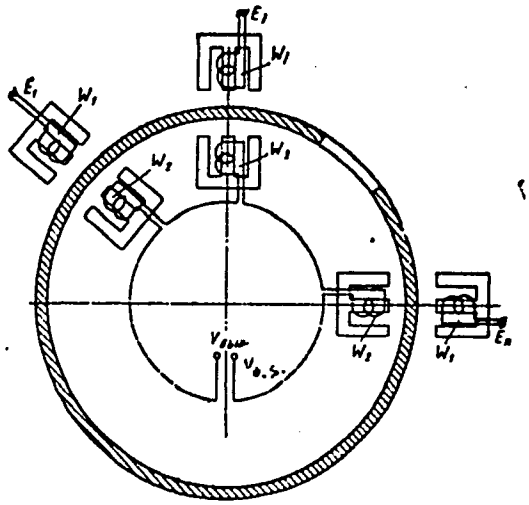

Fig. 4. Main diagram of inductive commutator. E_i - controlled voltage; $V_{o.s.}$ - output signal; W_1 - primary windings, W_2 - secondary windings.

The primary and secondary windings of the transformers are wound on separate cores. These are separated by a rotating magnetic screen. At the moment the air gap passes through a particular pair of cores, the linkage of this pair sharply increases and from the series-connected secondary windings the voltage is

passed to the amplifier of the vertical deflection which is proportional to the signal. The disadvantages are: a)The only possible application is with a.c. at a frequency of several kilocycles per/s.; b) The distorted shape of the signal leads to the need for smoothing; c) The signals are basically non-linear. The contactless electronic high speed commutators, based on electronionized and magnetic elements, consist of keys controlled by the switching system. They are suitable for a great number of measured channels which could be transmitted to several CRTs. Two methods are suggested. One is the use of a linear evolvent, synchronized with the work of the commutator --e.g. an evolvent with a waiting time which is started at the switching-on of the first channel; or a non-stop waiting evolvent and the introduction of an additional channel, with a constant signal which actuates the evolvent. The second method is the discrete shifting of the ray along the x-x axis with 'ladder' generators, which are contacted to the plate of a fixed potential. This assures the shifting of the ray into the position corresponding to the measuring on the given channel. In the

experimental apparatus the system of reading several parameter values set by the operator was adapted. The preset values were taken as zeroes, and the scale was up to 20% of the maximum possible value. The contactless commutator working on code controlled the valves successively contacting to the measured channels. The same commutator simultaneously controlled the second group of valves which were switched on the horizontal deflections of the stabilizing potentials, determining the place of each channel along the x-x axis. Prolonged experiments have shown that the maximum errors for measuring the channels of pressure and output did not exceed ± 2.5 % and those for the temperatures did not deviate more than ± 1.5%. Further development of this system will depend on the improvement of the elements used. The development of mono- and multi-ray tubes with electrostatic control having a flat rectangular screen of the size of cinescopes 43 -Л К -2Б (43-LK-2B) and 53-Л К- 2Б (53-LK-2B) will play an important part. In addition to the authors, the following Engineers participated in the research described above: V.M. Kuchenkov, L.M. Mayzel', I.O. Oskolkov, N.A. Trofimov. There are 5 figures and 6 Soviet-bloc references.

DUBASOVA, V.S., inzh.; EYGENBROT, V.M., inzh.

Diagram of multichannel automatic control of air conditioning systems. Vod.i san.tekh. no.4:17-20 Ap '62. (MIRA 15:8)
(Air conditioning) (Automatic control)

S/118/62/000/002/004/005
D221/D301

AUTHORS: Lemberg, M.D., Luk'yanov, N.G., Mayzel', L.M., and Eygenbrot, V.M., Engineers

TITLE: New circuits and means of pneumatic control

PERIODICAL: Mekhanizatsiya i avtomatizatsiya proizvodstva, no. 2, 1962, 31 - 34

TEXT: The authors describe the results obtained at the Institut avtomatiki i telemekhaniki (Institute of Automation and Telemechanics), Proyektno-konstruktorskoye byuro Ministerstva stroitel'stva RSFSR (Project and Design Office of Ministry of Construction RSFSR) the factory 'Tizpribor' and other organizations. The above permit also the realization of pneumatic control for positioning from a central control point. Qualitative efficiency of pneumatic circuits depends on correctly assessing the properties of air channels, which predetermine the quickness of response of the system. The results of experimental determination of the time characteristics of different length pneumatic pipes (made of copper) are described.

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The analysis indicates that the quickness of response may be improved by reducing the pressure of actuation and keeping constant the excitation pressure at the pipe inlet. The evaluation of control signals with various parameters from the point of view of freedom from interference demonstrates the expediency of pressure signals with pulse characteristics: $P = 0$ and $P > C$, where C is a certain pressure when the pneumatic element is operating. By the assumption $C - 0.2$ to 0.3 kg/cm^2, the response time of pneumatic elements at a distance of up to 300 m is 6 - 8 sec. The use of these two pulse marks permits coding of control signals. This demonstrates the advantage of parallel feed of signals which reduces the transmission time and exhibits a high immunity from interference. Its operational principle is based on a two-step selection of objects by a decade system. The control object is chosen by manual control valves which are joined into a set of tens and units. The consecutive operations are illustrated by an example of a piston actuator. The arrangement includes a block of indicators forming a panel. The manometers are designed for visual observation of control operation and the position of the actuator. In the case of fire and safety